



# OCSD and 1,4-Dioxane

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*Orange County Sanitation District*

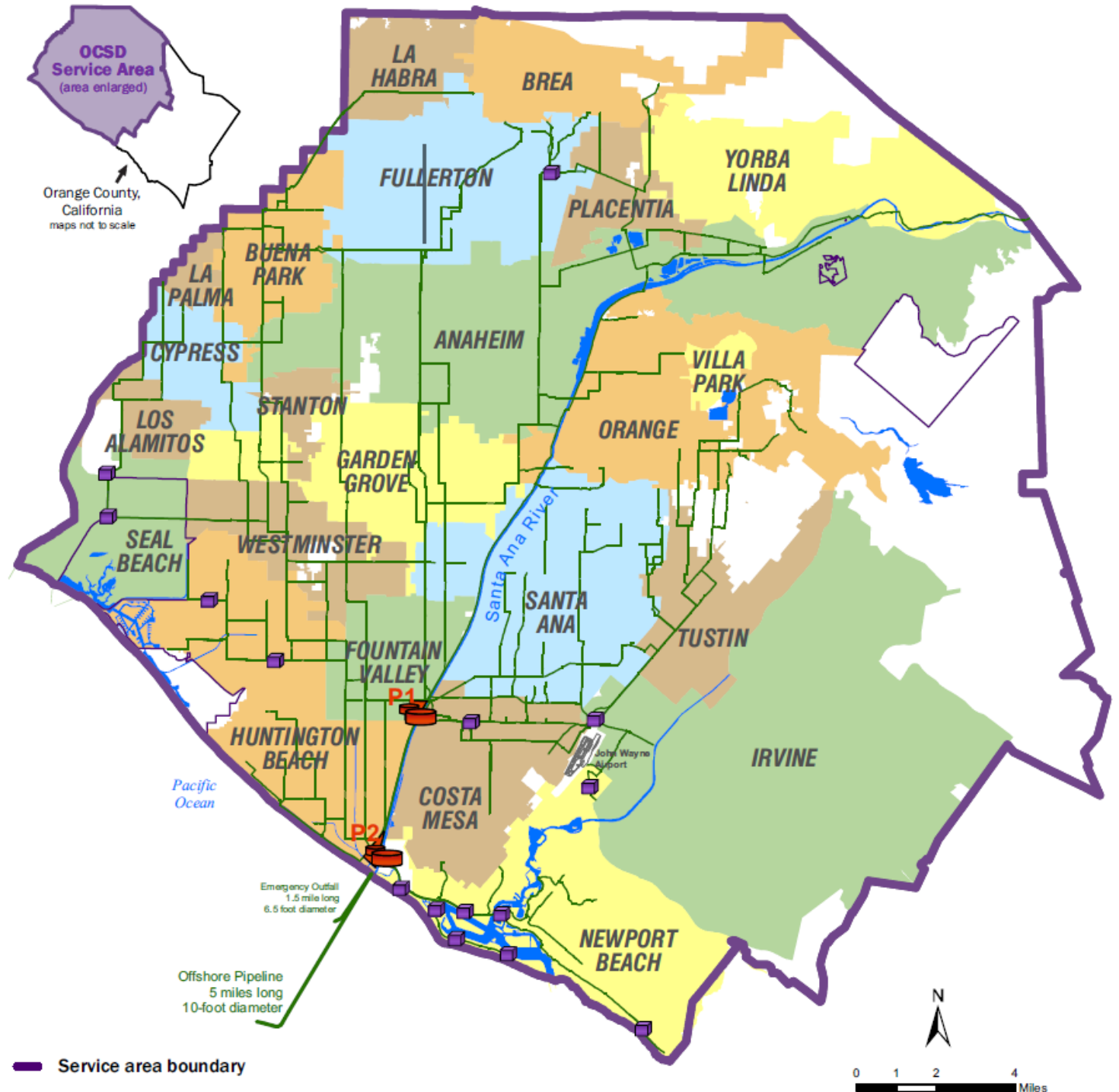


# COLLECTIONS SERVICE AREA

- Area: 479 square miles
- Population: 2.6 million
- North & Central Orange County
- Cities: 20

## TWO FACILITIES

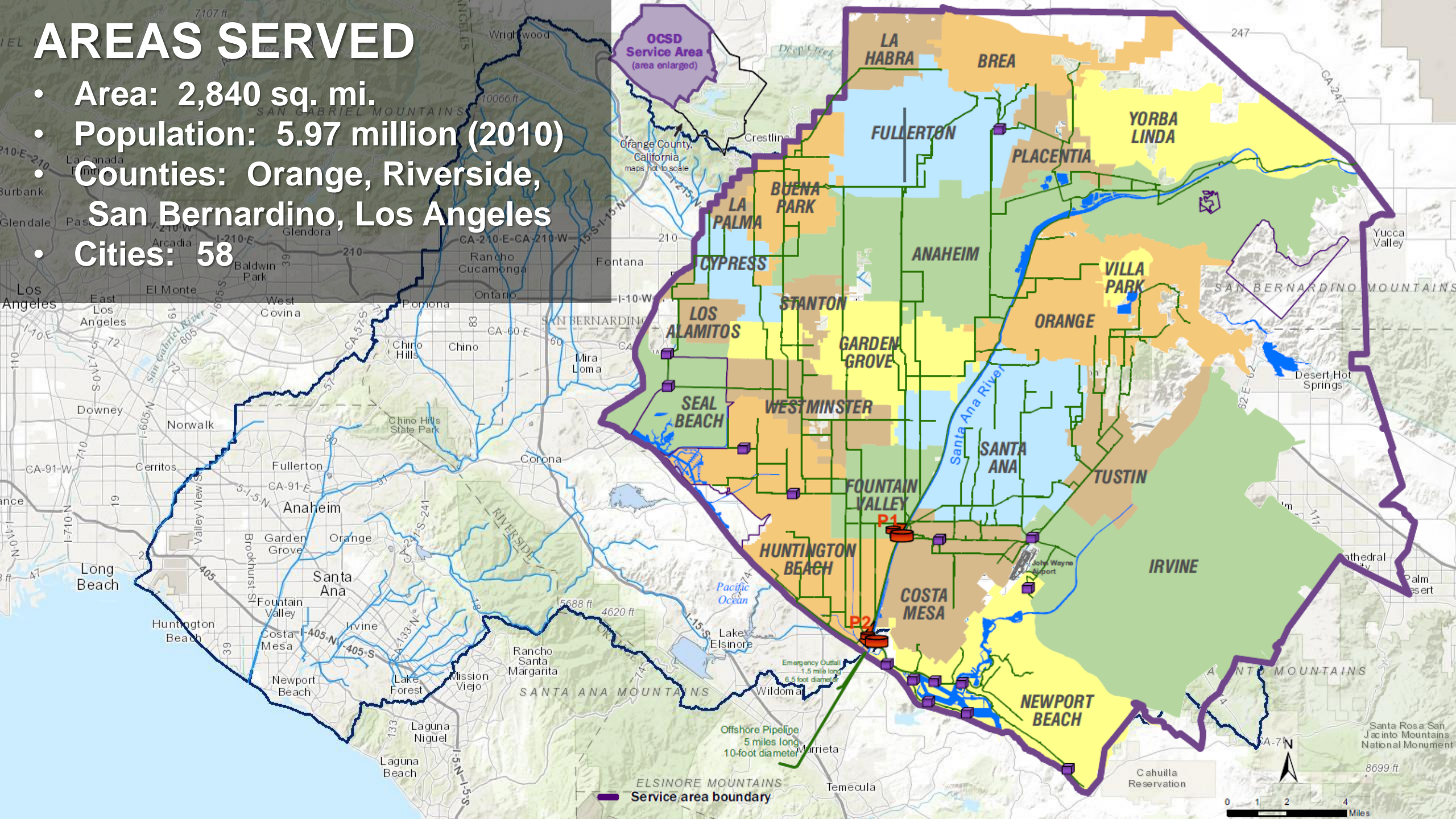
- Reclamation Plant No. 1  
in Fountain Valley  
115 - 130 MGD
- Treatment Plant No. 2  
in Huntington Beach  
65 - 85 MGD





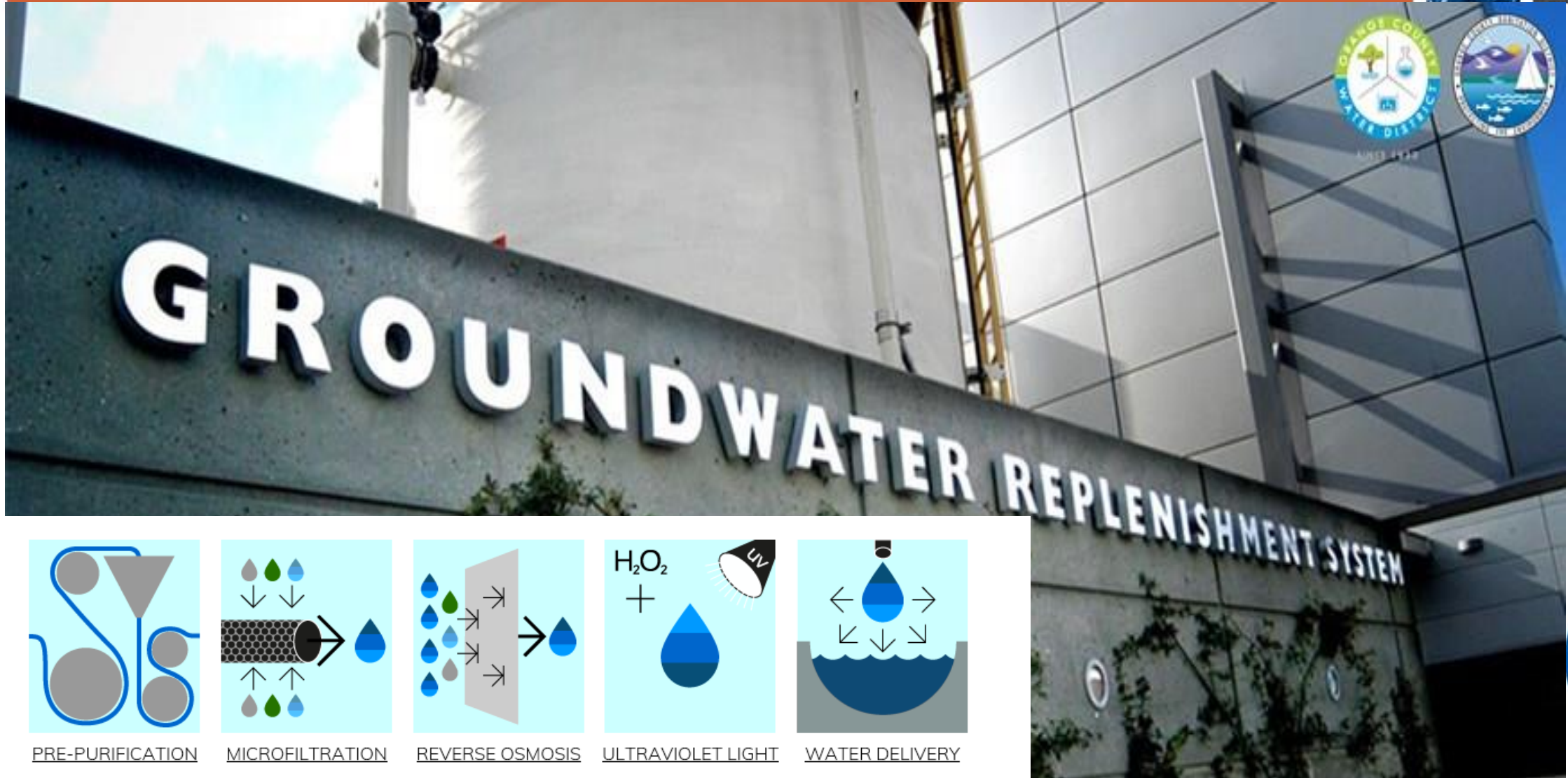
# AREAS SERVED

- Area: 2,840 sq. mi.
- Population: 5.97 million (2010)
- Counties: Orange, Riverside, San Bernardino, Los Angeles
- Cities: 58

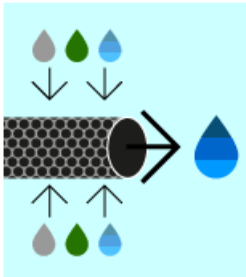




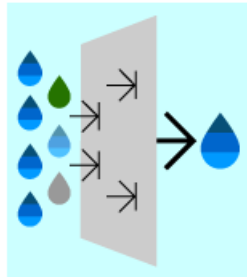
# Groundwater Replenishment System



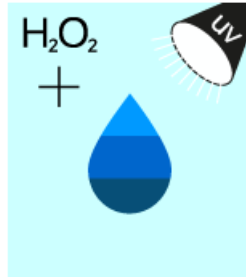
PRE-PURIFICATION



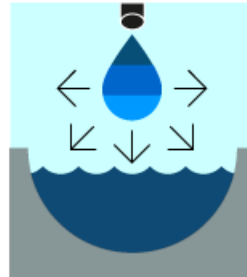
MICROFILTRATION



REVERSE OSMOSIS



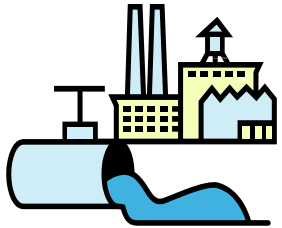
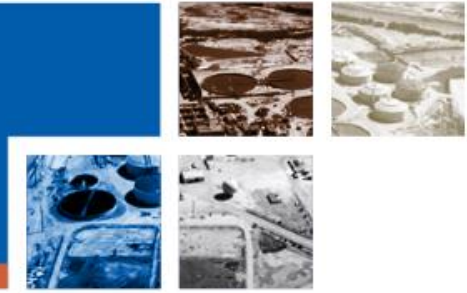
ULTRAVIOLET LIGHT



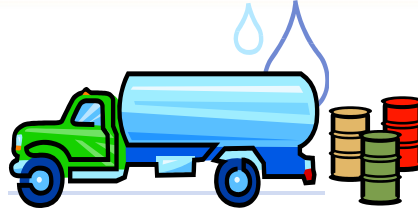
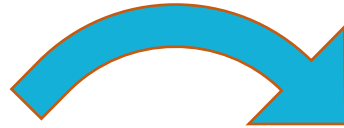
WATER DELIVERY



# Managing Sources of Pollutants Before They Enter the Sewer



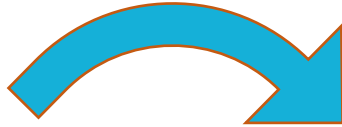
Industrial Users



## Industrial Sources



Household Users

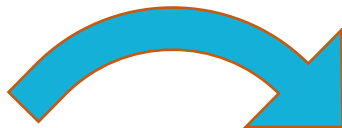


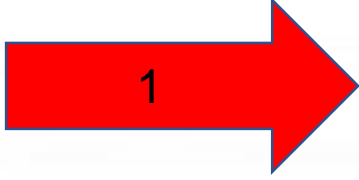
## Nonindustrial Sources

- Cities
- Utilities
- Community Programs

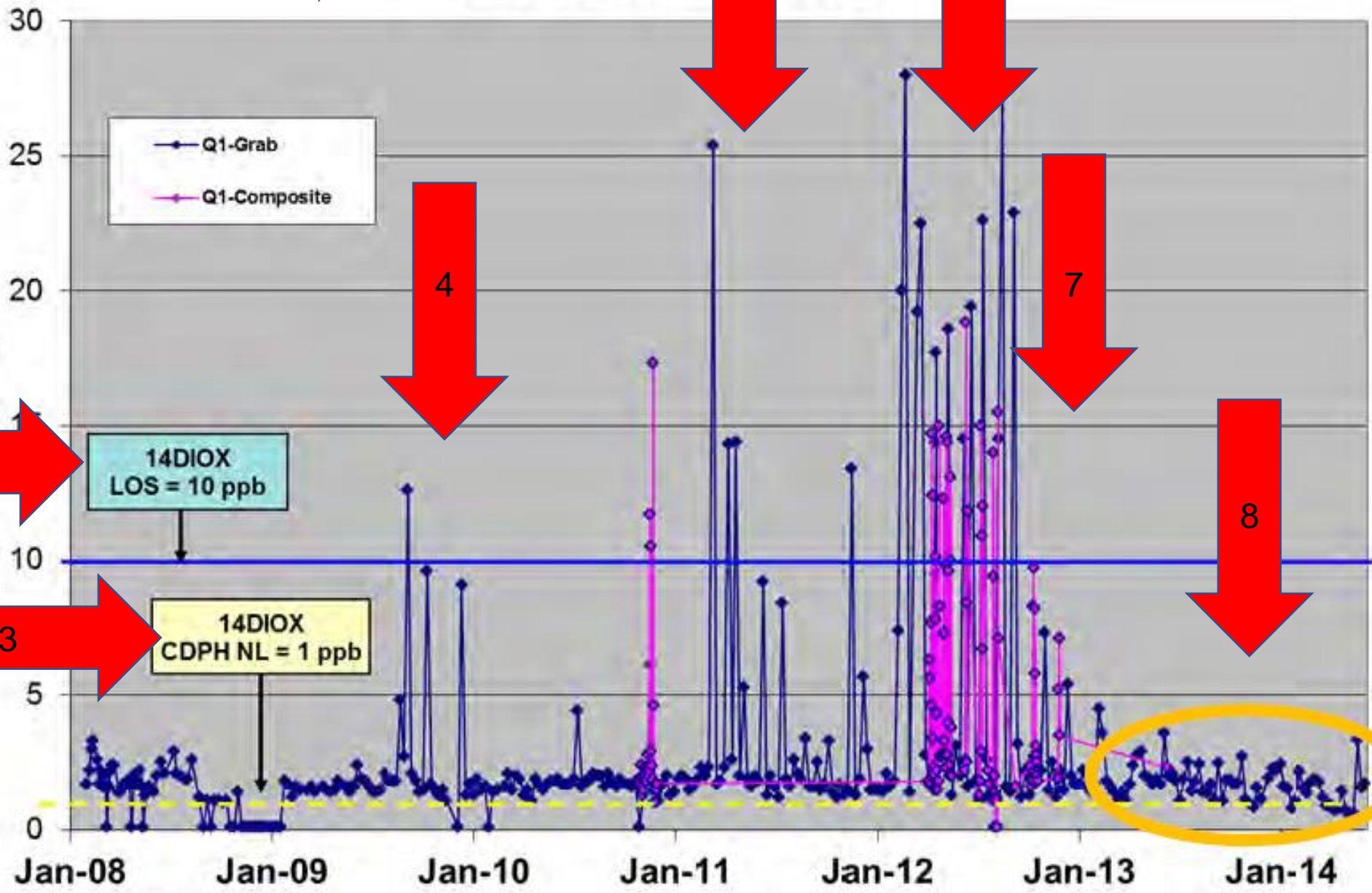
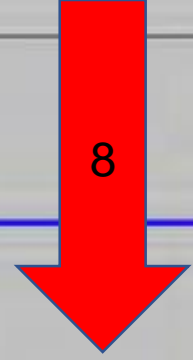
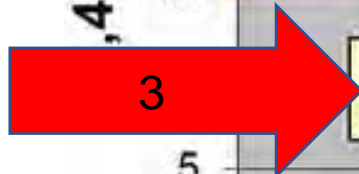
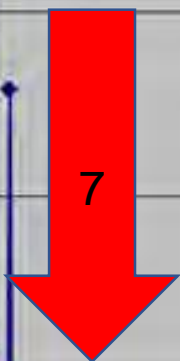
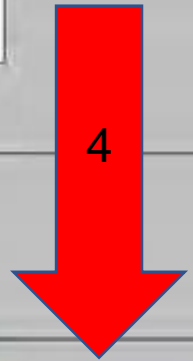
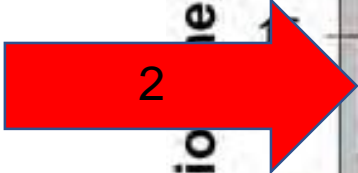
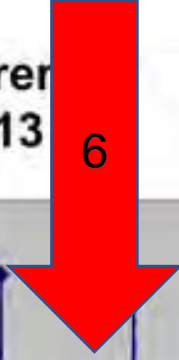
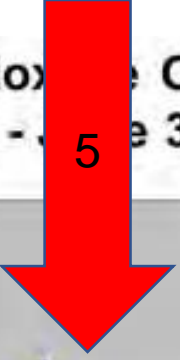


Commercial Users



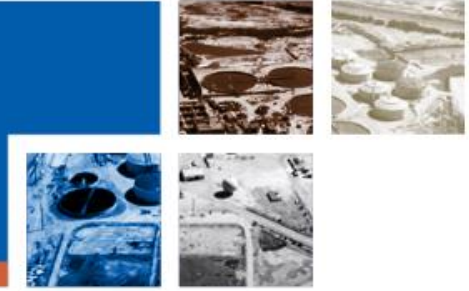


# GWRS-Q1: 1,4-Dioxane Occurrence January 2008 - January 30, 2013





# Sources



- Used in the production of pharmaceuticals, pesticides, paper, magnetic tapes, textiles, adhesives, and membranes for gas and liquid separation
- Found in automotive coolant liquid, paints, varnishes, shampoos, cosmetics

# Technical Evaluation of Local Limits

Pollutants of Concern	Local Limits, mg/L		Wastehauler Limits, mg/L		Basis
	New/ Amended	Existing	New/ Amended	Existing	
BOD	Mass Allocation	15,000 lb/d	- - -	- - -	TP2 Design Criteria
Ammonia	Mass Allocation	- - -	- - -	- - -	WQBEL Ocean Outfall
Chromium (Total)	20.0	2.0	35.0	2.0	RP1 2° Inhibition
Silver	15.0	5.0	- - -	- - -	WQBEL Ocean Outfall
Arsenic	2.0	2.0	- - -	- - -	RP1 Biosolids
Cadmium	1.0	1.0	1.0	1.0	RP1 Biosolids
Copper	3.0	3.0	25.0	25.0	RP1 Biosolids
Lead	2.0	2.0	10.0	10.0	RP1 Biosolids
Mercury	0.03	0.03	- - -	- - -	RP1 Biosolids
Nickel	10.0	10.0	10.0	10.0	RP1 Biosolids
Zinc	10.0	10.0	50.0	50.0	RP1 Biosolids
Molybdenum	2.3	- - -	- - -	- - -	RP1 Biosolids
Selenium	3.9	- - -	- - -	- - -	RP1 Biosolids
1,4-Dioxane	1.0	- - -	- - -	- - -	GWRS Influent
Total Toxic Organics	- - -	0.58	- - -	- - -	Toxicity GWRS Product
Cyanide (Amenable)	- - -	1.0	- - -	- - -	RP1 2° Inhibition
Cyanide (Total)	5.0	5.0	- - -	- - -	RP1 2° Inhibition
Petroleum O&G	100.0	100.0	- - -	- - -	Sewer Interference
Total Sulfides	5.0	5.0	- - -	- - -	Sewer Interference
Dissolved Sulfides	0.5	0.5	- - -	- - -	Sewer Interference
pH	6.0 - 12.0	6.0 - 12.0	6.0 - 12.0	6.0 - 12.0	Sewer Interference
PCBs	0.01	0.01	- - -	- - -	Toxicity
Pesticides	0.01	0.01	- - -	- - -	Toxicity



# Summary



- Thank you for your help
- Small quantities add up, so small changes can have significant impacts

